VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

DEQ Responses to the Draft Water Quality Assessment Guidance for 2004 305(b)/303(d) Integrated Report

November 3, 2003

The following are comments DEQ received during the draft water quality assessment guidance public comment period which ended on September 26, 2003. Each comment is followed by the DEQ response to the comment and where necessary, changes to the guidance manual have been incorporated.

Five organizations provided comments and all of the comments from each organization are included in this document. The first set of comments in this response document are from the **U.S. Navy** followed by **Loudon Watershed Watch** (LWW), **James River Association** (JRA), **Virginia Manufacturers Association** (VMA) and the **U.S. Environmental Protection Agency** (EPA).

DEQ appreciates the interest each of these organizations has shown in the water quality assessment process for the 2004 305(b)/303(d) Integrated Report. The water quality assessment process and the corresponding methodology used in water quality determination has been rapidly evolving but continues to be a very complicated and resource intensive aspect of environmental protection.

DEQ is committed to continue to improve the assessment process. One of the primary ways for improvement is listening to comments and/or suggestions provided by the public. All comments add insight into the process even though there may be disagreement with a particular comment.

Once again, DEQ would like to thank all of those who took time to provide comments regarding the water quality assessment guidance for 2004.

If you have any questions, feel free to contact Harry Augustine at (804) 698-4037 or by email at hhaugustine@deq.state.va.us.

Navy Comments to VADEQ
Draft Water Quality Assessment Guidance Manual
For Y2004 305(b)/303(d) Integrated Water Quality Report

1. Page 3, Va. Subcategory 5C: Va. Subcategory 5C is defined as - *"The water quality standard is not attained due to natural conditions. The AU is impaired for one or more designated uses by a pollutant(s) and may require a TMDL."* This category seems to be duplicative of EPA Category 4C which is defined as *"impaired or threatened for one or more designated uses but does not require a TMDL because the impairment is not caused by a pollutant."* Non-attainment due to natural conditions will not be associated with a pollutant since a pollutant must be discharged into water, and EPA guidance does not require that TMDLs be developed for impairments not caused by pollutants. If this is not the case, DEQ needs to clarify why and explain the distinction between EPA category 4C and Va. category 5C.

Response: The explanation for category 5C has been modified to describe waters that are "suspected" of being caused by natural conditions and possibly needing a TMDL. Category 4C is used for waters (lakes and reservoirs) that have been shown, via stratification data and trophic status index (TSI) calculation, as having naturally caused low dissolved oxygen (DO) and not needing a TMDL. The pollutant of interest in the low DO case would be anthropogenic introduced nutrients.

2. Page 5, Part 1 and page 23, Section 6.3.1: Language explaining the review process for non-DEQ monitored data including that from citizen monitoring programs appears too soft regarding requirements for DEQ review and approval, using phrases like *"should be requested"*, *"should be sent"* and *"should review"*. Considering the increased possibilities for poor data quality from these sources, this language should not imply that QA/QC assurances are optional.

Response: DEQ reviews all data provided by non-agency monitoring networks. These data have varying degrees of QA/QC review and approval and an assessment confidence level is associated with those QA/QC reviews. DEQ uses only fully approved QA/QC data for listing a water as impaired but can use lesser quality data for identifying observed effects and targeting additional follow-up monitoring for those waters.

3. Page 6, Part II.1.f: This item states that the Virginia Water Quality Monitoring Information and Restoration Act (WQMIRA) of 1997 requires the 303(d) report to identify waters as impaired if evidence shows contamination of sediment at levels which violate water quality standards or threaten aquatic life or human health. In order for waters to be listed for this reason, the state would need either numeric sediment criteria (which have not been developed) or numeric translators for narrative water quality criteria. If DEQ intends to use these translators, they should be published for comment.

Response: At this point, DEQ does not intend to list waters as impaired from sediment contamination due to the lack of a Water Quality Standard or a similar translator. The

screening values used for sediment assessment are used to detect possible observed effects on aquatic life and/or fish consumption designated uses and follow-up benthic and/or fish tissue monitoring should be scheduled to confirm the water quality status.

4. Page 8, Rule 1: The statement is made that predictive data generally refers to computer generated modeling data and may be used for assessment purposes on a case by case basis. There is no further explanation of this computer generated modeling data and no discussion of how it will be used in the assessment process. This type of data may be useful for weight of the evidence type assessments but should not result in waters being listed as category 5. At most, it should result in listings in category 2B (fully supporting but having observed effects).

Response: It is rare that modeling alone can lead to an impairment determination based on the varying sophistication and calibration verifications of the models available for scientific and specifically, water quality use. However, based on state and federal modeling expertise, impairment from water quality modeling cannot be completely ruled out.

5. Page 9, Rule 7: As discussed in the first comment, there appears to be no difference between Va. category 5C and EPA category 4C. The discussion of this rule does not clarify the issue. It states that *"waters that are assessed as impaired and the source of violation is due to naturally occurring , non-anthropogenic (not human related) conditions (such as low dissolved oxygen in bottom of reservoirs or slow flowing swamps) will be included in Category 5C"*. It also states that *"if natural conditions are shown to be responsible for the impairment, the water will be listed in Category 4C"*. These two criteria appear to be the same. As stated in the first comment, TMDLs should not be required for impairments caused by natural conditions because these impairments are not caused by pollutants (which by definition have to be discharged).

Response: See comment # 1

6. Page 11, Part IV.3: This section states that *"support for aquatic life use can be determined by the assessment of conventional parameters (dissolved oxygen, pH and temperature, except in tidal waters), toxic pollutants in the water column (relative to acuter WQS), toxic pollutant analysis of sediments, toxicity testing, nutrient analysis, and/or biological assessment of benthic communities. Normally, benthic assessments are the prominent aquatic life use determinant."* Since Virginia does not have numeric biocriteria or numeric translators of its narrative criteria, benthic assessments should not be the prominent aquatic life use determinant. The numeric ambient water quality criteria for protection of aquatic life should be the primary use determinant with biological assessment and sediment analysis serving as ancillary tools for designating waters as fully supporting with observed effects.

Response: DEQ uses independent application in assessment of aquatic life. Benthic health, associated with water quality, is assessed according to EPA approved

methodology. The statement "normally, benthic assessments are the prominent aquatic life determinant" was meant for free-flowing waters. There are other forms of aquatic life that can be affected by water quality degradation especially in lakes and estuarine environments. This statement has been removed from the guidance and all pertinent data will be assessed for aquatic life use determination.

7. Page 17, Table 2: For biological data, the table indicates that TMDLs would be required for freshwater Assessment Units that have been confirmed to be moderately or severely impaired, even if ambient water quality criteria are met and sediment data indicates no concern. Recommend that a weight of evidence approach similar to that being proposed for estuarine environments be utilized for freshwater. In the same block of that table, for estuarine waters, the reader is referred to section 6.4.2.2 for additional information. Section 6.4.2.2. provides a general description of the estuarine assessment approach but does not give the specific criteria that would be used to classify a waterbody as Category 2A, 2B, or category 5. The table should be modified to show the specific criteria for assigning assessment categories based on estuarine biological assessments.

Response: As stated above, DEQ uses all data relative to aquatic life independently. The "weight of evidence" approach used in estuarine waters is for toxic pollutant impairment to aquatic life determinations. Section 6.4.2.2 refers to overall estuarine benthic assessment of which toxic pollutant determinations are one consideration. Virginia, Maryland and EPA are in the process of finalizing the overall methodology used to determine estuarine benthic related aquatic life use.

8. Page 28, Section 6.4.2.2: A brief description of the estuarine biological assessment methodology is described but it is stated that the methodology is being refined by a project that will not be completed until October 1, 2003. Since this assessment methodology is a critical component of the weight of evidence approach used for estuarine waters, this guidance/methodology should be released for public comment after this study is completed and before it is used to list waters in category 5.

Response: The estuarine B-IBI assessment methodology was completed on October 10, 2003. It is included in revised guidance released on November 3, 2003.

9. Page 31, Section 6.5.2: The first paragraph of this section states that *"due to the delay between sample collection and final analysis results, fish tissue data for this assessment cycle will include samples from 1997 through 2001."* This is inconsistent with the data window of January 1, 1998 through December 31 2002 that is discussed in the Preface on page 1. The 2004 assessment should only include data from 1998 through 2002. This data window is being used for the other types of assessment data.

Response: Fish tissue data for 2002 was received in time for the 2004 assessment. This statement has been removed from the guidance document.

10. Page 46, Section 7.1. Rule 2 discusses delisting of effluent limited waters. It states that *"the removal or delisting process applies only to waters impacted by a single point source discharge. TMDLs will have to be developed and approved by EPA prior to delisting waters impacted by multiple discharges or a single point source with a significant nonpoint source load allocation component."* This rule should be modified or an exception added for the case where the water quality criteria for the pollutant that the waterbody is listed for has been modified either statewide or at a specific site. Where the criteria has been changed, it should be possible to delist the waterbody as long as assessment data show compliance with the revised criteria.

Response: Effluent limited waters are related to specific permitted facilities that have compliance schedules which have not been met at the time of the assessment.

11. Page 47, Section 7.2: Rule 2 specifies documentation required by EPA for delisting previously impaired waters. Four scenarios are given. None of these scenarios covers the case where the water quality criteria for the pollutant that the waterbody is listed for has been modified either statewide or at a specific site. Where the criteria for the pollutant that the waterbody is impaired for has been changed, it should be possible to delist the waterbody as long as assessment data show compliance with the revised criteria. A fifth scenario should be added that accommodates this situation.

Response: This additional scenario has been included in scenario 4

This is to provide comments by **Loudoun Watershed Watch (LWW)** under your Notice of Public Comment regarding the 2004 Water Quality Assessment Guidance Manual (DEQ Assessment Guidance). Questions can be directed to Darrell Schwalm, Chairman, Stream Quality Data and Research Committee.

LWW is a consortium of citizen environmental organizations and local government authorities concerned with water quality and the health of streams in Loudoun County. LWW's goals are to support cooperative, countywide programs to monitor and protect Loudoun's water resources and to create watershed management plans. Communicating and educating the public regarding water quality and environmental stewardship issues is an important means of accomplishing these goals.

GENERAL COMMENTS:

1. The primary objective of the Integrated Report to " educate and inform citizens and public officials" is being jeopardized by some of the changes being made in the 2004 guidance compared to the 2002 guidance. These changes have the impact of confusing and even obscuring clear meaning and interpretation of water quality data results and interpretations.

Response: The science of water quality assessment is an evolving task dictated by federal and state laws and regulations and the changing interpretations associated with those laws. The primary changes in the 2004 Integrated Report are being driven by the new

guidance from the federal Environmental Protection Agency. In an attempt to make a countrywide assessment of water quality conditions, EPA has developed new guidance for the states to use when assessing water data. States are encouraged to follow the new federal guidance but allowed to make adjustments to the basic guidance to better define state water quality goals and objectives.

2. It is alarming that DEQ has declined to include any reference to Total Maximum Daily Loads (TMDL) Implementation Plans in their procedures to delist impaired waters. It is also alarming that the Department of Environmental Quality (DEQ) has provided itself with the option of delisting an impaired water without having an approved TMDL. These provisions serve to undermine the TMDL process, and may discourage local government and citizen watershed organizations from collaborating with DEQ and the Department of Conservation Recreation (DCR) on TMDL implementation.

Response: DEQ delists only those waters that have been determined to be fully supporting designated uses based on the most recent comparison of monitoring data to the current Water Quality Standards as identified in the Assessment Guidance manual.

SPECIFIC COMMENTS:

1. Page 2 – LWW objects to DEQ adding several new "defined subcategories" to EPA's defined Categories.
    a. These new subcategories created by DEQ are a critical component of the Guidance Manual and need to be more fully described, perhaps in a section of their own in the report.

Response: EPA guidance allows states to add subcategories to the federal categories. DEQ has included several subcategories to be able to better track some of the waters that have differing water quality characteristics outside of the more general federal categories. DEQ has added additional subcategories, and attempted to clarify others, in revised guidance.

    b. LWW objects to DEQ adding subcategories to the categories established by EPA. Conversations with Mr. Augustine, DEQ, reveals this is being proposed in order to facilitate internal data keeping. Having 12 categories that define the condition and status of our streams will make it extremely difficult for citizen groups to communicate information regarding water quality to the public and local officials whose support for stream monitoring and watershed planning is crucial. The need for effective communication to the public should outweigh internal needs for bookkeeping.

Response: See previous response.

2. Page 3 – LWW disagrees with DEQ's determination that "for 2004, Virginia will not declare any waters as 'threatened.' Threaten means to give warning

of harm. This accurately describes what citizen data can provide to DEQ and public officials. Citizen environmental groups in Loudoun have had occasion in the past to bring to DEQ's attention monitoring data that provides quantitative evidence that streams are being degraded. Citizens are encouraged to monitor streams because of the important role this monitoring does to warn DEQ of harm to aquatic life. Not to characterize citizen data as providing a warning is telling citizens that DEQ does not interpret the data as providing a warning and thereby is marginalizing the value citizen data. LWW believes that "smoke coming from a house signals a threat, and a warning needs to be made loud and clear to get the fire department there in time to keep the house from burning down." Further, not characterizing any waters as 'threatened' avoids making public the full extent of nonpoint pollution problems that may exist in the state.

Response: DEQ cannot predict designated use impairment as per the EPA definition of "threatened" water. The only other federally recognized terminology for indicating a "water of concern" is the term "having an observed effect". DEQ thinks this terminology better describes the uncertainty of a waterbody that needs additional information to determine if the designated uses are being met. In addition, DEQ has added subcategories in revised guidance to distinguish those waters monitored by citizen volunteers, including those that need follow-up monitoring by DEQ.

3. Page 4 (and subsequent pages) – LWW objects to not following EPA guidelines regarding "threatened waters." Instead of "threatened" DEQ proposes that waters identified by citizen data as being degraded are going to be characterized as having "observed effects" instead of "threatened." What are "observed effects?" How do you explain them to the public and public officials? What do you do to observe them? Do they fly, crawl in the grass, or swim in the water? Will DEQ publish an identification key on how to identify "observed effects?" Mr. Augustine explains that the term "observed effect" was taken from a column heading on an EPA spreadsheet for data reporting. It is being used by DEQ because DEQ can't agree on what data is needed to indicate a threat, and therefore, has decided not to use the term at all. Instead DEQ is proposing to use a meaningless term that the public does not understand to characterize the same data that EPA characterizes as a "threat" to water quality.

Response: Part V section #2 explains what conditions are to be considered as having observed effects. Observed effects can be associated with different designated uses as identified in Part V section 2. Observed effects waters are identified as candidate waters for additional monitoring to better determine their overall status.

4. Page 16 – LWW objects to the provisions under the subheading, "Biological Data," that will require "data that are confirmed" to be confirmed again in a second survey. This is another example of the confusing nature of the changes being proposed in the guidelines.

Response: The guidance has been modified to better explain that an unconfirmed moderately impaired sample had been collected early in the reporting period and had subsequently been assessed as not impaired. If the moderate impairment was discovered in one of the last 2 sampling events, a documented explanation of why it should not be listed as impaired and needing a TMDL will be required.

5. Page 19 – LWW objects to probabilistic sample results not being used to help classify individual streams. DEQ has made substantial cutbacks in their monitoring in Loudoun County and other counties to have resources to do probabilistic sampling. Not to use these samples along with trend monitoring data to classify streams is a waste of critically limited stream monitoring resources. At a minimum probabilistic data should be used to classify a stream segment as EPA Category 3: Insufficient data to determine whether any uses are met. This will create a need for follow-up data collection when the probabilistic data suggests a stream segment is threatened. Mr. Augustine indicates that DEQ is proposing not to use the probabilistic data because DEQ does not have the resources to do follow up sampling if the probabilistic sample shows poor water quality. LWW believes that probabilistic sampling will take DEQ into portions of watershed never before sampled, and into waters assumed to meet water quality standards. DEQ should not ignore data that may rebut this assumption.

Response: DEQ proposes to use all probabilistic toxics data for assessment purposes. All probabilistic benthic samples will collect 2 sets of conventional data (spring and fall) that will be used in the assessment. Additionally, DEQ is incorporating reference conditions for sample comparison use associated with the benthic assessment program. These reference conditions will be available for use in the 2006 assessment allowing for the assessment of benthic probabilistic data. Water quality for conventional pollutants is so variable from day to day and season to season that DEQ believes a single conventional sample does not provide a reliable indication of overall water quality.

6. Page 19 – LWW objects to DEQ eliminating the guidance provided on Table 4, Section 6.2.2 in the 2002 Guidelines regarding "Watershed Station Rotation and Assessment Criteria." This guidance was helpful to citizens and public officials in understanding how the classification criterion is applied depending upon the number of samples available. Providing less information to the public is another example of how the proposed changes in the 2004 guidelines are not consistent with the stated purpose of educating the public. The old Table 4 can be modified to be consistent with the new classification categories.

Response: DEQ has modified the station rotation guidance and it has been incorporated into the monitoring strategy. DEQ feels this is a more appropriate place for this information. When completed in 2004, DEQ will post a revised water monitoring strategy on its website.

7. Page 26 – LWW finds the explanation regarding the use of NPS assessments and the aquatic IBI score in impairment designations to be unclear. DEQ should clearly explain how NPS and IBI scores would be used as ancillary information to assess impairments.

Response: DEQ worked with EPA and the state of Maryland to develop a methodology for using estuarine benthic IBI data. A methodology has been finalized and has been incorporated into the revised assessment guidance manual. NPS assessment information is used to direct monitoring efforts into those waters that appear to be affected by NPS influences.

8. Page 26 – LWW supports the use of "additional potential chemical pollutants with no water quality standard criteria" to help determine the degree of use support for aquatic life.

Response: DEQ agrees that this information can help identify factors that can affect designated uses, especially aquatic life.

9. Page 30 – LWW recommends that DEQ adopt the lower threshold of 100 ug/l for total phosphorus for free flowing streams. The threshold is being used as a warning that the waters may be threatened, and the lower limit will allow corrective action to be taken before conditions deteriorate to the point corrective action is not feasible.

Response: DEQ feels the higher threshold is a sufficient screening tool for assessing phosphorus loading until federal and state nutrient standards can be developed and adopted. There is still much debate on nutrient loading and its effect on water quality and in particular, on aquatic life.

10. Page 47 – LWW objects to DEQ de-listing an impaired stream that does not have a TMDL. DEQ should not be allowed to work outside the TMDL process. Further, LWW objects to DEQ not using a TMDL Implementation Plan as a criterion to determine whether a stream can be de-listed as impaired. It is not enough that a TMDL is developed to de-list an impairment. The implement plan enumerates the BMPs and other management controls needed to restore the water quality in an impaired stream. It is inappropriate to have DCR, local government, and citizen groups put in time and resources to creating a TMDL Implementation Plan without using it as a criterion for de-listing. Allowing DEQ to ignore TMDL implementation in determining whether a stream should be de-listed will allow DEQ to work outside the TMDL process. The entire Section 7.2 needs to be rewritten to incorporate TMDL Implementation Plans as the major criterion for de-listing.

Response: The 303d list is a list of waters that have been identified as not meeting Water Quality Standards with the water's associated designated uses. If subsequent monitoring

data shows the Water Quality Standards are being met, this data is submitted to EPA, who must authorize delisting before a water can be removed from the 303(d) list.

11. Page 47 – LWW objects to DEQ using water quality modeling to determine whether a stream meets water quality standards and can be de-listed. It is unclear what are the "special cases" that would permit the use of modeling. This section needs to be rewritten to include guidance regarding the type of validation study DEQ will do to de-list an impairment when a TMDL Implementation Plan has been completed and trend data show water quality has improved.

Response: It has been determined that there are critical elements associated with impairment determinations that only modeling can adequately predict. These are normally associated with weather related events where monitoring data is not available or easily obtained.

12. Page 48 – LWW objects to DEQ applying the "Proactive Approach" any time a TMDL is scheduled for development in order to de-list impaired streams. The proactive approach as described in Appendix E does not consider TMDL Implementation Plans and represents an approach that encourages DEQ to bypass the TMDL process. The Proactive Approach will also allow DEQ to de-classify a stream based upon as little as two samples collected in one year's period. LWW believes these criteria are inconsistent with the TMDL requirements.

Response: The proactive approach is an EPA approved method of assessing current water quality conditions where voluntary measures are being performed in a watershed and the assessment results show the water is meeting WQ Standards.

13. Page 49 – LWW objects to DEQ considering public interest and support, and locally available funding as criteria in developing TMDL schedule priorities. In Loudoun County DCR advised citizen environmental groups and county officials that TMDL Implementation Plans would not be scheduled unless the plan development was taken over by local government or citizen groups. This approach allows the state to avoid its obligation to provide adequate funding for natural resources.

Response: Currently, DEQ's main priority for developing TMDLs is driven by the 1999 EPA Consent Decree that was associated with the 1998 303d Impaired Waters List. DEQ is obligated to complete all TMDLs for the waters identified in the Consent Decree by 2010.

14. Page 63 – LWW objects to the requirements established for the Proactive Approach. Application of the approach as proposed defeats the purpose of the TMDL Implementation Plan and TMDL program in the following manner:

a. The biological criteria of two consecutive samples taken over as little as one year will not provide valid data on the condition of the biological community. There is too much seasonal and yearly variability in the biological community for two samples over one or even two years of data to have an acceptable level of validity. If it takes 5-years of data to determine that a stream is impaired, it should take an equal amount of data to determine that the health of the stream has been restored.

Response: The proactive approach is designed for waterbodies where restoration actions are being taken to improve water quality. If these actions result in two consecutive fully supporting benthic assessments, there is enough evidence to say the water quality is now meeting the aquatic life designated use and should be delisted.

b. The requirement that samples be taken at the same location that demonstrated the impairment is inappropriate because it may be inconsistent with the findings of the TMDL study. For example, in the Goose Creek TMDL study, additional sampling done to support the modeling and the modeling itself found that fecal contamination was widespread in the watershed. DEQ declined to expand their designated impairment explaining this was unnecessary since TMDL implementation will cover the entire watershed. This requirement that allows an impairment to be de-listed based upon one sampling location is inconsistent with DEQ public statements about how they are handling impairments. This will also force citizen watershed groups to pressure DEQ to expand their monitoring in streams with impairments to more accurately reflect actual conditions. DEQ does not have the resources to do this, or the resources to accurately classify the state waters. DEQ should not shortcut the TMDL implementation process.

Response: According to EPA guidelines, a station that gets a segment listed must show the water quality from the same site has improved to where it is now meeting the standards before it can be delisted.

c. The requirement that a rational document be submitted to EPA to justify why the State believes the waters are achieving water quality standards should include documentation that the management controls required under the TMDL Implementation Plan have been applied.

Response: There are many reasons that a waterbody is now meeting Water Quality Standards outside of just a TMDL implementation plan. All reasons should be included in the rationale document.

d. The requirement for documentation should include a TMDL Validation Study that provides documented data that water quality standards are being met in the watershed due to the application of BMPs. DEQ has responsibility at the state level to assess TMDL implementation, and they

have advised the public that they will do this in the future when TMDL controls have been applied. Under law, DEQ focuses on the short segments of the watershed for which they have monitoring data and which have been classified as impaired. DEQ did not conduct comprehensive studies of the water quality throughout the watersheds to determine which sections are impaired and which meet water quality standards. DEQ's data also do not include stream survey, habitat, or aquatic life data that characterize conditions in the watersheds. Consequently, the segments designated as impaired often reflect the "tip of an iceberg" rather than true water quality conditions in the watershed. This is evidenced by the findings of the Goose Creek TMDL study wherein DEQ determined that nonpoint pollution existed throughout the watershed and that all tributaries needed pollution controls if water quality standards are to be met. Therefore, DEQ's existing data from their trend stations cannot be relied upon to provide an adequately baseline to validate the effectiveness of pollution controls instituted under TMDL Implementation Plans. They have no monitoring data for large portions of the watershed that are contaminated and in which TMDL controls are needed if water quality standards are to be met throughout the watershed. Therefore, it is important that a TMDL Validation Study of the TMDL Implementation Plan be made. A Validation Study is designed to document the effectiveness of the best management practices (BMPs) that have been installed to improve the water quality. The study should encompass all portions of the watershed identified in the TMDL model as being impacted by NPS and needing controls if water quality standards are to be met. The validation study should conform to the following parameters:

i. The problem of inadequate baseline data is compounded by the fact that the purpose of a TMDL validation is to document a change in water quality. To accomplish this, baseline water quality data are needed throughout a watershed with an impairment before control measures are installed. This needed baseline data should be collected through the probabilistic sampling design.
ii. Trend stations are needed to measure a change from the baseline and improvements in water quality in impaired streams over the time period of the TMDL implementation. In watersheds such as Goose Creek, this should include trend stations for each of the major subwatersheds and major tributaries. Trend data are to be collected from stations located on the basis of professional judgment.
iii. A Validation Study using the same probabilistic sampling design should be undertaken once the trend data suggest that significant progress has been made in meeting water quality standards.
iv. If data results indicate that the TMDL implemented management controls are not effective, DEQ should reevaluate the TMDL

model to confirm its accuracy, and DCR redesign the TMDL Implementation Plan to better achieve targeted results.

TMDL Implementation will focus primarily on BMP improvements in riparian buffers in agricultural areas in order to decrease runoff and protect stream banks from erosion caused by livestock. These BMP improvements should show changes in benthic macroinvertebrate and stream habitat conditions and in bacteriological levels making these good parameters for validating TMDL implementation. The same water quality and stream health parameters used in the probabilistic and trend monitoring designs can be used to validate TMDL controls.

Response: In order to maximize limited available resources, DEQ will continue to monitor watersheds based on the rotating watershed monitoring strategy. DEQ will use newer data to measure the progress of any TMDL implementation practices as well as any trend data from the watershed to determine if associated designated uses are being met. If implementation measures do not show improvements, the TMDL and/or implementation plans may need to be reviewed and possibly modified or revised.

The **James River Association** is dedicated to conservation and responsible stewardship of the natural and historic resources of the James River Watershed. On behalf of our 2200+ members, we have reviewed the Water Quality Assessment Guidance Manual and offer the following comments.

1. Part III, Rule 1: We are concerned that temperature in tidal waters will not be assessed due to the lack of a Water Quality Standard. This is a particular problem in tidal fresh stream segments where power plants discharge extremely hot water into streams designated for recreational use. We are concerned about the impacts on human health due to pathogens and possible scalding. Stream temperatures should be measured near power plant discharges to assess possible impairment to recreational uses and public health.

Response: Temperature is measured at all ambient monitoring stations. However, the Water Quality Standard for a maximum temperature does not apply to tidal waters. These waters are assessed against any rise above the natural temperature unless a thermal variance has been granted by the State Water Control Board.

2. Part III, Rule 3: We want to ensure that all streams are assessed for swimming designated use with the standard of 200 fecal coliform bacteria per 100 milliliters. Just because a stream is too small and shallow for actual swimming, children can still come in contact with and possibly ingest the water. To adequately protect public health, we support all streams being protected for primary recreational uses.

Response: All streams in Virginia are designated for primary contact recreation use. Bacteria sampling results are assessed against the fecal coliform instantaneous standard where samples are collected monthly. During transition to the new E coli/enterococci

bacteria standard where less than 12 E coli samples have been collected, both the fecal standard and the E coli standard apply. Once 12 E coli samples have been collected from a site, the E coli standard only applies.

3. Part VI, Section 6.3.1: We are concerned that progress made on accepting and including Citizen Monitoring Data has been eroding. With reduced spending by the state on Water Quality Monitoring, inclusion of citizen monitoring data is even more important. We encourage DEQ to work in partnership with organizations such as ours that promote and assist citizen monitoring efforts.

Response: With the increased attention on the 303d list, DEQ has had to focus more attention on QA/QC documented data. DEQ QA/QC staff have been actively working with citizen monitoring groups in an effort to identify inconsistencies with monitoring protocols and recommend ways to correct the inconsistencies. This ongoing effort should result in additional QA/QC approved citizen monitoring data for assessment review and listing consideration.

4. Part VI, Section 6.5.1: We are concerned that stream segments will not be designated as impaired for nutrients due to the lack of nutrient standards or guidance on nutrient impairment. Given the importance of this issue, particularly in the Chesapeake Bay Watershed, some guidance should be adopted and streams with nutrient problems should be identified. Although progress has been made on reducing phosphorus, much more needs to be done on nitrogen. Corrective actions should be initiated on these streams to move toward meeting the goals of the Chesapeake Bay Agreement.

Response: Waters exceeding the chlorophyll a and/or phosphorus screening values are identified as having observed effects. Once numeric nutrient standards have been adopted, these waters, previously noted as having observed effects from nutrients, will be assessed against the nutrient standards and those waters not meeting the assessment criteria will be listed as impaired.

5. Part VI, Section 6.5.3: We believe that for freshwater toxics evaluation, data on total metals should be evaluated in addition to dissolved metals data, which may not be sufficient to determine water quality impairment. This will provide a truer picture of a stream's health. This is the approach taken for estuarine toxics evaluation and would seem just as applicable for fresh water.

Response: The USEPA has recognized that the bioavailable fraction of toxic trace metals exists in the dissolved phase and not in the total recoverable species except for mercury. Our water quality standards reflect this and are indicative of toxic effects on the ecological community. We are conducting a statewide freshwater probabilistic monitoring program for toxic trace metals which, during the data analysis, will be able to determine if there are potential adverse effects occurring on the ecological community from trace metals

Generally, we are concerned about the lack of notification of the public when their local streams are impaired. For example, streams used for recreational purposes, such as the James River in Richmond, that are impaired due to bacteriological contamination should be adequately posted. There has been a lot of confusion about when and where the water is safe for wading, swimming, etc.

Response: DEQ lists the waters assessed as impaired for bacteria in its 305b/303d reports and on the DEQ website. The assessment uses monitoring data from a specified period of a number of years. Bacteria levels are greatly influenced by episodic rainfall events and normally pose the greatest threat after the rains have ended. Predicting when and where a water is safe for recreational purposes day by day is not possible due to very limited resources for "real-time" assessments.

Similarly, fish are routinely caught between Richmond and Hopewell for recreational and commercial purposes, as well as subsistence, yet the public is unaware that PCB-contaminated fish have been found in this area. We believe that the Department of Environmental Quality and the Department of Health should better notify the public about potential risks to public health.

Response: The Virginia Department of Health makes the decisions regarding whether fish tissue data warrants a public health related warning. Once this determination has made, DEQ includes the advisory/prohibition information on its website and asks the Virginia Department of Game and Inland Fisheries (VDGIF) to include any prohibitions in the VDGIF fishing regulations pamphlets as a public awareness initiative.

We are also concerned that stream segments may be removed from the 303(d) list of impaired waters by changing the standards or using limited data, rather than cleaning up the sources of impairment. Adequate funding should be sought by DEQ to comply with the Clean Water Act and the Virginia Water Quality Monitoring, Information, and Restoration Act, so that the intent of these laws can be met expeditiously.

Response: Waters are removed from the 303d list only when they are deemed to be meeting the Water Quality Standards. Before standards can be changed, they must go through the Administrative Process Act proceedings allowing for public participation. Adequate data must be considered prior to delisting the water. Ultimately, EPA must approve the delisting.

The **Virginia Manufacturers Association** ("VMA") appreciates this opportunity to comment on DEQ's draft 2004 Water Quality Assessment Guidance Manual, which was released for public review on August 22, 2003. As described below, VMA supports many aspects of the draft manual, especially those that foster scientifically sound and transparent assessment decisions (two of the stated goals of EPA's recent listing guidance to states). However, VMA is concerned about three approaches proposed by DEQ and seeks clarification on several others.

VMA is an organization formed to encourage and support the industries located within the Commonwealth of Virginia, to afford a medium for cooperation among those industries, and to initiate, encourage, foster and promote constructive policies and activities on behalf of industry. VMA provides the means for manufacturers to participate effectively in the shaping of laws, regulations, and administrative rulings that affect manufacturing and mining operations throughout the Commonwealth. VMA represents greater than 32% of the manufacturers in the Commonwealth of Virginia and has been an active stakeholder in DEQ's assessment and listing process for many years.

1. VMA Supports Many Aspects of the Draft Manual.

VMA commends DEQ for revising its listing methodologies to reflect recent guidance from EPA entitled "Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act" (TMDL-01-03, dated July 21, 2003). VMA also commends DEQ for tailoring its draft manual to the Commonwealth's unique water resources and needs, consistent with the Water Quality Monitoring, Information and Restoration Act and the range of options presented by EPA in its recent guidance.

In particular, VMA supports the following decision rules and methodologies:

- refinement of EPA's listing categories (i.e., 2A and B, 3A and B and 5A through D);
- limitations on the use of partially-approved monitoring data, "evaluated" data and non-DEQ biological monitoring data;
- excursion thresholds and sample size restrictions;
- limitations on the use of benthic data assessments made within the public monitoring program pending development of regulatory reference conditions;
- approach to observed effects;
- weight of evidence approach to toxic pollutant assessments;
- case-by-case use of Category 2B for conventional parameters;
- focus on "long term or chronic" pollutant-related problems;
- acknowledgement of a mixing zone carve-out;
- limitations on the use of predictive nonpoint source models;
- development of a stream condition index;
- approach to RBP-II and ERM survey data;
- step-wise approach to nutrient data, recognizing that there currently are no applicable numeric nutrient criteria;
- running three-year window to address the three-year return frequency associated with aquatic life criteria; and
- critical condition (i.e., 7Q10) limitation on evaluation of dissolved oxygen, pH and temperature data.

VMA believes that these rules and methodologies will help to produce a credible accounting of impairment conditions in the Commonwealth's waters.

2. VMA is Concerned with DEQ's Approach to Prior Listings, Fish Advisories and Fish Tissue Screening Values.

Although VMA supports many of the concepts advanced by DEQ in the draft manual, VMA is concerned about DEQ's approach to prior listing decisions, fish advisories and fish tissue screening values. VMA fears that DEQ's approach in these first two areas is inconsistent with EPA's recent guidance and in the last with established scientific principles.

According to EPA, the fact that a water was previously listed as impaired is not, by itself, "positive evidence that it must remain in Category 5 until a TMDL is established." (EPA Guidance at page 9). One of the factors identified by EPA as "good cause" for removing a water from Category 5 is:

> The development of a new listing methodology, consistent with state WQSs and federal listing requirements, and a reassessment of the data that led to the prior listing, concluding that WQSs are now attained. (EPA Guidance at page 9).

Consistent with EPA's good cause factors, DEQ should acknowledge that listing decisions (whether to add or remove waters from Category 5) may be based on a reassessment of existing data according to the new guidance manual. VMA recognizes that DEQ may not have the resources to do so for all waters previously listed as impaired, but interested stakeholders should be given an opportunity to conduct their own reassessments (subject, of course, to DEQ review and approval). Part I (pages 4-5), Part III, Rule 8 (page 9) and Part VII, Section 7.2, Rule 1 (page 47) should be revised to reflect that delistings can occur based on a reassessment of existing data, in addition to an assessment of new data.

With respect to listing decisions based on fish consumption advisories, EPA clarified in its recent guidance that:

- advisories should not be used to demonstrate impairment of "fishable" uses unless: (1) they are based on actual fish tissue data from the specific water segment; and (2) the risk assessment parameters (e.g., toxicity, risk level, exposure duration and consumption rate) of the advisories are cumulatively equal to or less protective than those in the state's water quality standards;
- if a state classifies shellfish growing areas "prohibited" as a precautionary measure (e.g., due to the proximity of a wastewater discharge or the absence of a sanitary survey), then it should not list the segment in Category 5 without additional segment-specific data; and
- if an advisory is based on FDA action levels, then the state should not list the segment in Category 5 without additional segment-specific data. (EPA Guidance at pages 11-12).

DEQ should conform its guidance manual with EPA's approach to fish and shellfish advisories. As described below, DEQ also should revise the process by which it assesses impairment using fish tissue screening values, consistent with principles of sound science.

Response: Many of VMA's comments regarding the assessment of fish-tissue are similar to their previous comments made in 2002. These issues include those involving assessing certain chemical analysis, variability, species of fish sampled and assessed, sample size concerns, and use of a VMA recommended approach where the toxic contamination is apportioned differently among several trophic levels of fish, citing an approach used in Georgia. DEQ has addressed these issues in detail last year in the Virginia Department of Environmental Quality 2002 Water Quality Assessment 305(b) and Impaired Waters Listing 303(d) Report Public Comments Issues and Responses available at **www.deq.state.va.us/wqa/pdf/305b/response.pdf**.

On page 31 of the draft manual, DEQ presents the following rationale for its proposed use of fish tissue screening values:

1) The water quality criteria are water column concentrations that are based on specific fish tissue concentrations, calculated to represent a safe or acceptable minimal human health risk level.
2) The water quality criteria are designed to prevent the fish from bioconcentrating the toxic contaminants to levels greater than these fish tissue concentrations.
3) The screening values represent the fish tissue concentration equivalent of those water quality criteria.
4) In light of the preceding three factors, fish tissue concentrations greater than the screening values demonstrate that the effect for which the water column concentrations are designed to protect has already occurred.
5) Impairment is determined when two or more fish tissue composite samples from a site exceed the water quality criteria.

VMA generally agrees with DEQ's first three factors, which establish a safe concentration or dose. However, properly developed criteria also contain components that incorporate the fundamental toxicological principles of exposure duration and frequency (e.g., 4-day average not to be exceeded more than once every 3 years). VMA does not believe that these principles are adequately addressed in the process proposed by DEQ in the fourth and fifth factors.

According to DEQ, a segment may be listed as impaired when a screening value is exceeded in two or more fish tissue composite samples (i.e., two different species during a single sampling event or in the same or different species during different sampling events). Although fish tissue criteria are designed to be protective over a lifetime of exposure, DEQ's approach fails to incorporate the principle of "exposure duration." For example, neither impairment scenario considers the long-term average fish-tissue concentration. Under the first impairment scenario (two different species during a single sampling event), additional sampling may demonstrate that the long-term tissue

concentrations of both species are actually below the screening value. Likewise, under the second impairment scenario (the same or different specifies during different sampling events), a screening value could be exceeded in one species one time, and in another species the next without a long-term exceedance in either species.

VMA also is concerned that DEQ's proposed use of fish tissue screening values does not consider:

- the magnitude of the exceedance;
- that variability associated with field sampling within the natural population is "commonly on the order of 200%"[1];
- that a particular fish species may not be routinely consumed by humans (e.g., gizzard shad); or
- that more than one species of fish may be consumed from a particular waterbody, and consequently, a screening value exceedance in one species alone does not constitute the lifetime exposure risk for an individual or population that uses a particular waterbody as a source of fish.

In order to establish a numeric criterion, like a fish tissue screening value, DEQ must do more than simply establish an acceptable dose. It must consider other factors, such as exposure duration and frequency. If it fails to do so, then the criterion will not be based on sound science and, when applied, may result in inappropriate impairment decisions, not to mention the unnecessary loss of public and private resources without any corresponding environmental benefit.

VMA urges DEQ to revise its procedures for assessing fish tissue screening values, consistent with other accepted approaches around the country. VMA described one such approach, Georgia's trophic-level geometric mean approach, in its comments on Virginia's 2002 303(d) list. Georgia's approach was accepted by EPA and implemented in a manner that produced appropriate impairment decisions.

Response: DEQ notes that most guidance that is available for the consideration of exposure duration and frequency is specific to water quality criteria and is specific to the concerns with water data that involve the fact that water-concentration data are usually instantaneous concentrations. Issues involving instantaneous concentrations in water are not the same issues involved with fish-tissue concentration data and recommendations for dealing with exposure, duration and frequency issues in water column data to be applied to fish-tissue data have no scientific basis and are inappropriate.

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[1] See September 19, 2002 "Response to Virginia Manufacturing Association Comments on PCBs in Fish" provided by Dr. Robert C. Hale, Virginia Institute of Marine Science, which was included in the DEQ's response to public comment on Virginia's 2002 303(d) list.

VMA comments appear to consider fish-tissue data as instantaneous concentrations. This is incorrect. Fish-tissue-concentration data are long-term-average concentrations, assimilated over the lifetime (typically 2-5 years) of the fish collected. Fish data from DEQ's routine sampling are composite samples of several fish (typically 5-10 individuals of similar size/age). Therefore the fish-tissue data DEQ uses to assess the "fishable" use or the attainment of the corresponding Water Quality Criteria represent "average concentrations" of "long-term average concentrations". These fish-tissue data are considered appropriate for use in assessing the potential for human consumer exposure via consumption of the contaminated fish and for the attainment of the level of protection intended by the corresponding Water Quality Criteria.

VMA's cites concerns with the magnitude of exceedence and variability associated with field sampling within the natural population. These comments appear to be based on a concern that a small amount of data might by accident of natural distribution of the natural population result in a detection of a highly contaminated fish sample that is not really representative of the "real" natural population in the water body. This concern should be ameliorated by the following facts;

1. Fish-tissue-concentration data are long-term-average concentrations, assimilated over the lifetime of the fish collected.
2. Fish data from DEQ's routine sampling are composite samples of several fish (typically 5-10 individuals of similar size/age), so any excessive influence of any individual fish will be lessened.
3. A single exceedence of a WQS derived value will not result in classifying the water body as impaired. It would be classified as fully supporting but with observed effects. This is true even though in most cases data for only 5-3 fish-tissue samples would be available for a typical waterbody during a five-year assessment period. This would typically mean that 20-33.3 % of all available fish-tissue data indicated the non-attainment of the "fishable" use.
4. At least two exceedences of a WQS derived value are required before a water body is classified as impaired due to fish-tissue data. With the typical 5-3 fish-tissue samples that would be available for an average waterbody during a five-year assessment period, this would mean that 40-66.3 % of all available fish-tissue data indicated the non-attainment of the "fishable" use in order to classify the waterbody as impaired.
5. After a waterbody is classified as impaired due to fish-contamination, additional monitoring of the fish population will be conducted either as part of DEQ' regular fish-tissue monitoring program or as part of the initial phases of any TMDL investigations, allowing ample opportunity for reassessment and corrections of any inappropriately assessed water body.

VMA comment:
Concerning fish consumption advisories; VMA states that EPA has clarified in its recent (July 2003) 305(b) guidance that "advisories should not be used to demonstrate impairment of "fishable" uses unless: (1) they are based on actual fish tissue data from the specific water segment; and (2) the risk assessment parameters (e.g.. toxicity, risk

level, exposure duration and consumption rate) of the advisories are cumulatively equal to or less protective than those in the state's water quality standards".

Response: WQMIRA requires DEQ to list waters as impaired where VDH has issued advisories or prohibitions on fish consumption regardless of the basis used by VDH for issuing advisories.

3. VMA Seeks Clarification on Several Approaches Proposed by DEQ.

VMA questions how some aspects of DEQ's guidance manual will be interpreted or applied during the 2004 listing cycle. In particular, VMA requests clarification on the following points:

- On page 3, DEQ asserts that, for 2004, Virginia will not declare any waters as "threatened." However, EPA retains the right to do so and likely will take issue with DEQ's categorical exclusion of threatened waters from the assessment process. VMA urges DEQ to include additional decision rules under which DEQ may declare waters as threatened, on a case-by-case basis, based on an "unmistakable downward trend" in water quality.

Response: DEQ intends to include an Appendix to the 305b/303d report which identifies those waters that have observed effects and are deemed to be waters of concern. DEQ will not predict impairments but will use the waters of concern list to identify and prioritize those waters for additional monitoring.

- In Part III, Rule 9 (pages 9-10), DEQ proposes to limit Category 4B to waters impaired by point sources. Consistent with EPA's recent guidance, DEQ should expand this category to include waters impaired by nonpoint sources, based on a determination that other pollution control requirements (e.g., best management practices, air emissions controls, sediment dredging) are expected to result in the attainment of standards within a reasonable period of time. (EPA Guidance at pages 6-7).

Response: Rule 9 is specific to effluent limited waters. These are permitted facilities that have compliance schedules that have not been met. Depending on when the permit specifies compliance, these facilities would be listed in Category 4B or 5E.

- Throughout the manual, DEQ seems to endorse the comparison of data to narrative criteria (see, e.g., Part III, Rule 1, on page 8). In order to do so within the contours of federal and state law, DEQ first would need to translate those criteria into numeric endpoints using established rulemaking procedures. As a matter of federal policy, EPA has repeatedly emphasized that states should develop translator mechanisms for converting narrative criteria into numeric criteria, and, as an essential corollary, should ensure adequate public participation in the development of those translator procedures. See, e.g., EPA Water Quality Standards Handbook, 2d Edition (1994), pages 3-21, 22. Moreover, as a matter of

state law, it is well established that changes to water quality standards must be vetted through a public process that comports with the State Water Control Law and Administrative Process Act. See, e.g., Commonwealth of Virginia, ex rel. State Water Control Board v. Appalachian Power Company, 9 Va. App. 254 (1989).

Response: DEQ has successfully identified impairments relative to narrative standards without a numeric translator. The narrative standards have gone through the public process and will continue to be used in the assessment as described in the assessment guidance manual.

EPA's water quality standards regulation allows for a state's water quality standards regulation to contain both narrative and numeric criteria; it does not require a regulatory translator for narrative criteria.

Virginia has had a narrative criterion that states that designates all state waters for the use of "the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them...". DEQ has conducted biological monitoring of Virginia's waters for many years using the EPA based RBP II methods. These methods were the current EPA recommended methods for assessing benthic macroinvertebrates and assessing aquatic life use recommended by EPA during the 1990s and are still used by many states. EPA has required DEQ to use the results of the biological monitoring program to assess the aquatic life use in past 305(b) assessments and is requiring DEQ to use these data during this assessment cycle also. EPA has in essence accepted DEQ's biological monitoring methods and the resulting data as the translation of Virginia's narrative criterion. The assessment methods and the requirement from EPA that these data used in the 305(b) assessment have been subjected to public comments many times in past 305(b) assessment cycles.

- In the second full paragraph on page 5, DEQ should replace "supported by" with "derived from" to avoid confusion over the application of EPA's monitoring protocols.
- Although VMA supports DEQ's proposed excursion thresholds and sample size restrictions, VMA fears that EPA may reject them in the absence of separate decision rules that address outliers (e.g., data excluded based on age or sample size). VMA urges DEQ to include reasonable decision rules for such outliers (e.g., authorizing the assessment of older data only when scientifically appropriate and only for trend analysis purposes).

Response: DEQ feels it is necessary to have professional flexibility when reviewing and assessing certain data. With increasing data generated by non-DEQ monitoring programs, the need for specific case by case decisions regarding data use or non-use becomes more and more important.

- In Part III, Rule 5 (page 9), DEQ should acknowledge that the worst-case data point may be excluded when the assessment staff determines, based on best

professional judgment, that the data point is not representative or otherwise undermines the rest of the data set.

Response: Best professional judgement is an option on a case by case basis.

- In part III, Rule 7 (page 9), VMA questions how DEQ will choose between Categories 4C and 5C. To avoid confusion, DEQ should clarify that waters impaired due to natural conditions will be included in Category 4C. Alternatively, DEQ could include them in Category 5C but defer TMDL development for the maximum length of time (thereby facilitating revision of the applicable standards).

Response: Language has been added to clarify the difference between Category 4C and 5C.

- In Part IV, Section 2 (page 11), DEQ should clarify how inconsistent data will be weighted or ranked for comparison purposes.

Response: All data relative to aquatic life is reviewed independently. If WQ Standards are not being met according to assessment procedures, the water is listed as impaired.

- Consistent with the terminology used by EPA, DEQ should change "violations" to "excursions" in the context of data being assessed against water quality standards (since standards are not directly enforceable).

Response: The term violation has been removed.

- VMA supports DEQ's plan to refine the estuarine biological assessment methodology but questions how the final refinements will be used for listing purposes during the 2004 cycle. VMA also requests an opportunity to review and offer comments on the proposed refinements (after they have been developed).

Response: The final 2004 estuarine Benthic IBI assessment methodology has been published in the final 2004 assessment guidance, released November 3, 2003. It is recognized by DEQ and EPA that this methodology will likely undergo further refinement and enhancement for the 2006 305b/303d cycle. VMA's comments or suggestions on the 2004 methodology will be welcomed and considered during any future refinement process.

- In Part V, the critical condition threshold for dissolved oxygen, pH and temperature should be extended to other criteria, according to established practices (e.g., 1Q10 for acute aquatic criteria, 7Q10 for chronic aquatic life criteria, 30Q5 and harmonic mean for human health criteria).

Response: The exemption for DO, pH and temperature standards are specified for flows below 7Q10 only. The other critical thresholds are default design flows for calculating steady state wasteload allocations.

- In Part VI, Section 6.2.1 (pages 18-21), DEQ describes the process by which waters will be segmented for listing purposes. DEQ should acknowledge that all of the factors identified by EPA in its recent guidance will be considered in defining segments (EPA Guidance at pages 2-3).

Response: DEQ Regional office staff must consider many factors when delineating a segment. Ultimately, professional judgement and local knowledge of the waterbody becomes a major factor for determining a segment.

- In Part VI, Section 6.4.2.1 (pages 26-27), DEQ should require habitat assessments and recent flow history to be made an official part of all biological assessments, in order to ensure that any waters listed as biologically impaired are, in fact, impaired due to pollutants (as opposed to poor habitat or badly timed sampling).

Response: The Biologists routinely conduct habitat assessments as part of the biological sampling and local drought and flood events are known to the Regional Biologists conducting the monitoring and assessment.

DEQ is in the process of revising the Virginia Biological Monitoring Program and will be using up-dated metrics and methods in the future. VMA's comments and recommendations will be considered as DEQ moves forward in revising the Biological Monitoring Program. Any changes to the program will affect the next 305(b) cycle.

- In Part VI, Section 6.4.2.1 (pages 26-27), DEQ should upgrade its bioassessment approach, consistent with the comments that VMA offered in connection with the Dumps Creek TMDL (attached for reference).

Response: DEQ has been working with EPA and their contractor Tetra Tech to develop reference conditions for the various ecosystems found throughout Virginia. It is anticipated that this new benthic assessment methodology will be available for use in the 2006 assessment.

- On page 49, DEQ suggests that it will adjust certain TMDL development schedules based on comments received from the United States Fish and Wildlife Service. To ensure that the listing and TMDL process is transparent and stakeholder-friendly, VMA urges DEQ to issue all draft schedules and schedule revisions for public review and comment.

Response: All scheduled TMDLs are identified on the DEQ TMDL website at **http://www.deq.state.va.us/tmdl/**

- In Part VII, Section 7.1, Rule 2, VMA questions why DEQ has limited the delisting process to waters impacted by only one point source. Nothing in federal or state law or guidance supports such a limitation.

Response: Effluent limited waters are related to a single point source with a compliance schedule included in the VPDES permit.

- In Part VII, Section 7.2, Rules 1 and 2, DEQ should acknowledge all of the factors cited by EPA as "good cause" for delisting (See EPA Guidance at pages 9-10).

Response: DEQ feels all factors cited by EPA as "good cause" for delisting are captured in this section.

VMA applauds DEQ's efforts to develop new methodologies for the 2004 listing cycle, consistent with guidance from EPA. For the most part, VMA supports the decision rules contained in the draft manual. However, VMA believes that additional refinements are necessary in order to ensure that Virginia's 2004 integrated §303(d)/§305(b) report is scientifically and legally sound.

EPA Comments on Water Quality Assessment and Guidance Manual for Y2004

Preface

I. Page 4, The guidance should reference EPA's guidance for the 2004 listing cycle.

Response: 2004 reference included

II. Page 5, In VA Category 2A, please change the write-up to "Waters are attaining all of the uses for which they are monitored for and there is insufficient data to document the attainment of all uses". When is citizen monitoring data deemed adequate for listing a water as impaired? Category 2B seems to identify waters that would be considered threatened by EPA, why aren't these waters listed as impaired? Please describe what is meant by "data quality is not good enough". Please remove the word "may" in the first sentence of the Category 2B write-up.

Response: Citizen monitoring data that meets the QA/QC review and approval process can be considered for impairment of those parameters that were QA/QC approved. Category 2B waters are considered as having observed effects needing additional monitoring to determine if the water is actually impaired or not based on the additional data. Data quality is something DEQ takes seriously in the review of water quality. The term not good enough means the data has not passed some aspect of QA/QC review. The word "may" has been removed from Category 2B description.

III. Page 6, Please add a statement to the Category 3A write-up that the water was not deemed impaired on the previous assessment. Waters which were previously

defined as impaired cannot be moved to Category 3A if monitoring data was not collected during the assessment period as stated in Rule #8. For waters in Category 4B, the compliance schedule should be complete by the next listing or permitting cycle. Please provide an explanation for not listing threatened waters.

Response: Category 3A has been adjusted as per the above comment.
Category 4B has been modified to include "the schedule should be complete by the next listing or permitting cycle". DEQ is not aware of any reliable method to "predict" future impairment as per the EPA definition of threatened waters. For this reason, no threatened waters will be proposed in Virginia's 2004 assessment.

305(b)/303(d) Assessment Process

IV. Page 7, If partially approved data can be used to find a water fully supporting, it should be used for documenting an impairment. Please discuss how the Commonwealth is using predictive modeling or dilution calculations for listing purposes.

Response: DEQ agrees if data quality is good enough to say a water is fully supporting, the data should be good enough to list a water as impaired and vice versa.
Predictive modeling and dilution calculations are used on a case by case basis especially where monitoring data is not easily obtainable such as during periodic weather related events.

V. Page 8, Has there been any citizen's monitoring data in the past or in this listing cycle that have met the state's QA/QC requirements? If citizens' data meet the QA/QC requirements of the state is it used for impairment decisions? Does DEQ consider fish-kills reported by other agencies for listing purposes? The third paragraph states "The regional biologists should review the available data as resources allow and make a determination regarding the acceptability of the data...", please remove the term "as resources allow".

Response: Any data that meets the state's QA/QC requirements can be used for listing. Currently, only a few specific parameters have been QA/QC approved for listing by citizen monitoring groups. DEQ may consider recurrent fish kills for listing if a specific pollutant can be identified as the cause. The term "as resources allow" has been removed.

Water Quality Monitoring, Information and Restoration Act (WQMIRA)

VI. Page 9, Please define the term "significant decline" in Part 1E. What is meant by the term "Fully Supporting but Threatened", is this Category 2B of Virginia's list? Why aren't these waters being listed as impaired? How is the state intending on using "trend analysis" data?

Response: WQMIRA was written by the state legislature. It did not define "significant decline" nor the term "fully supporting but threatened". As previously documented, DEQ

has used the term fully supporting but threatened to identify waters that needed follow-up monitoring. DEQ does not use the term fully supporting but threatened to predict impairment as per the current EPA definition. New trend analysis software is being developed for future use. Once the software package has been completed, DEQ will use it in a trial demonstration to see if the results of the trend analysis make sense. A complete trend analysis will be completed and included in the following (i.e. 2006) assessment.

Rules for the 2004 Water Quality Assessment

VII. Page 11, Will waters with small data sets (2-9 samples) and multiple violations be listed as impaired. It appears that waters with small data sets and a single violation would be more appropriately listed in Category III since there is not enough data to make a determination. Please remove the term "designed" from Rule 3.

Response: Waters that have 2 or more exceedences in a small dataset will be listed as impaired. Waters with a single conventional exceedence in a small dataset will be listed as insufficient data (Category 3B). The term designed has been removed from Rule 3.

VIII. Page 12, Rule 4, with the evaluation of the Chesapeake Bay-Index of Biotic Integrity (B-IBI) data, benthic and habitat collections made within the probabilistic monitoring program will be assessed. Can data collected from other probabilistic monitoring network stations (PMNS) be used in impairment determinations. In Rule 7, waters should be listed in category 4C if they are impacted by pollution.

Response: DEQ is conducting a 5-year probabilistic study. That study will be completed in several years and an analysis of the data will be included in the 2008 assessment.

IX. Page 13, Rule 9 states "If the VPDES permit has been issued with a scheduled compliance date that extends beyond the next 303(d) listing cycle, the water would be listed as Category 4B." Permits with a compliance date prior to the next listing and permitting cycle should be listed in Category 4B. Permits with a compliance schedule beyond the next listing and permitting cycle should be placed in Category 5.

Response: The guidance has been modified to reflect this comment.

Designated Uses of Virginia's Waters

X. Page 14, Would a water be listed for aquatic life use violations if benthic samples document impairment while the chemical analysis documents attainment of criteria? With the ability of toxins in the sediment to migrate up the food chain, would it be appropriate for waters with elevated levels of toxins in the sediment to be listed for fish consumption advisories? Please explain why tidal waters are not assessed for the aquatic life use through conventional parameters.

Response: Yes.
Fish tissue samples are analyzed to detect any toxics that migrate into the food chain. Tidal waters are assessed for aquatic life use through all conventional parameters except temperature as no maximum temperature standard exists. Guidance has been modified to clarify this aspect of the assessment guidance.

Criteria to Determine the Degree of Use Support

XI. Page 16, Part V states "Waters that do not have water quality data for any or all designated uses will be designated as insufficient data (Category 3)" According to this statement a water that meets all the uses it was monitored for but was unassessed for the aquatic life use would be listed in Category 3 not Category 2A. Is this correct? Since small data sets with one violation will not be assessed shouldn't they be Category 3 waters, not fully supporting.

Response: This section of the guidance has been modified to clarify the use of these different categories.

XII. Page 17, Waters with a greater than 10.5% violation rate based on other than DEQ data will be listed in the fully supporting but having an observed effect category. These waters should be listed in Category 3 for insufficient data, it seems as though preliminary information leads the reviewer to find these as impaired but the data quality limits the use of the data. Therefore, more data is needed for an assessment and Category 3 appears most appropriate. Please define what is meant by medium and lower quality data. How will waters deemed fully supporting but having an observed effect be listed on the 305(b) report? Waters listed as fully supporting but having an observed effect should include waters with biological assessments indicating slight impairment as these waters are still supporting their use but they are not deemed unimpacted. Moderately impaired waters should be listed as impaired. What is meant by "medium quality biological data".

Response: This section of the guidance manual has been modified to reflect these comments.

XIII. Page 18, When will the follow-up sampling be conducted for waters with "medium quality biological data". Please mention that there are no state approved water quality criteria for chlorophyll a or phosphorus.

Response: Medium quality biological data waters will be scheduled for follow-up monitoring once they have been prioritized according to monitoring strategy guidance and regional biologist availability.

XIV. Page 19, Why are waters with a single tissue violation deemed to be fully supporting? In the impaired waters section, if multiple samples of the same species of fish show tissue contamination above a screening value in the same

sampling event is the water deemed impaired? Waters with a single benthic assessment as moderately impaired should not be considered fully supporting with observed effects, these waters should be placed in Category 5 as impaired. What Category will shellfish waters with administrative closures be placed? Where will these same waters be placed if data shows a violation of the applicable criteria?

Response: DEQ considers the exceedence of a fish-tissue concentration that is the basis for the corresponding water quality criterion to be similar to an exceedence of an ambient water sample that exceeded the water quality criterion. A data set of fish tissue for a site is almost always likely to be less than ten data points for a site within a five-year period. With small data sets such as these, DEQ has determined that two exceedences of the criterion will result in a determination that the designated use of the water body in not supported. This has been done to accommodate concerns with small data sets and the variability associated with single data points. Guidance has been modified to require justification for not considering a single moderate benthic rating as impaired in one of the last 2 samples collected. DEQ considers the shellfish use removed from waters that are closed solely because of the proximity of a permitted discharge source. These waters will be assessed for all other applicable designated uses.

XV. Page 21, Table 2 For conventional pollutants small data sets with 2 or more violations should be assessed as impaired since the violation rate will be over 20% not fully supporting but having observed effects as indicated in Table 2. Waters with a small data set and 1 violation should be placed in Category 3. Slightly impaired waters should be listed as fully supporting but having observed effects. Waters with a single benthic evaluation indicating a moderate benthic impairment should be listed in Category 5.

Response: Two or more exceedences of non-QA/QC conventional parameters are considered insufficient data with observed effects (Category 3C). Two or more nutrient screening value exceedences alone are considered fully supporting with observed effects due to the lack of a standard (Category 2B). Slightly impaired benthic assessments are considered fully supporting with observed effects. (Category 2B) A single moderate benthic assessment is considered fully supporting with observed effects provided a justification is documented if the moderate assessment occurred in either of the last two (most recent) sampling events.

Assessment Methodology

XVI. Page 23, With the evaluation of the Chesapeake B-IBI data, probabilistic data will be evaluated and assessed in the 2004 report.

Response: Estuarine probabilistic data will be evaluated and assessed according to the new methodology developed by VERSAR for the 2004 report. This methodology has been summarized in revised assessment guidance released for public comment on November 3, 2003.

XVII. Page 24, How does the Commonwealth intend to aggregate and assess the data above and below the pycnocline?

Response: The data will be pooled as a set of all individual profile observation collected either above or below the pycnocline. Each pooled 5 year data set will then be assessed using the "EPA fixed rate assessment guidelines" with the additional requirement that "At least 2 sampling events must show exceedences > 10.5% before the assessment unit is listed as impaired. Assessment units sampled in only a single event and exhibiting >10.5% exceedences during that event will be designated as having observed effects and targeted for return monitoring as resources allow".

Assessment Process

XVIII. Page 27, Can citizen monitoring data be used for a determination of impairment if the data meets the Commonwealth's QA/QC requirements? If citizen monitoring data cannot prove that a water is violating criteria, why is adequate to document the attainment of criteria?

Response: Yes.
This section has been amended to reflect non-QA/QC data will not be used for listing or fully supporting determinations.

XIX. Page 28, Areas of high and medium probability for adverse conditions should be prioritized for sampling in the next assessment. These waters should not be simply considered for assessment as stated in Bullet 7.

Response: These waters will be prioritized according to DEQ monitoring strategy guidance and biologist availability.

XX. Page 30, The Commonwealth states " No water shall be assessed impaired based solely on the predictive NPS model." Please elaborate on why the state refuses to list waters based on the NPS model. Does the state intend to delist waters on modeling data. In Section 6.4.2 it states "Waters not meeting standards considered due to natural conditions .... the source of impairment listed as "Unknown"." Why wouldn't the source be natural conditions?

Response: There are many variables associated with the NPS model that cause hesitation on listing waters as impaired based solely on the model. However, as modeling becomes more refined, DEQ will consider modeling results on a case by case basis.
DEQ has just recently developed a procedure to confirm natural DO impairment in lakes and reservoirs. Other suspected natural impairments do not have a confirmation procedure yet, therefore it was felt unknown sources was an appropriate designation.

XXI. Page 31, Condition 1 of Section 6.4.2.1, why is RBP I not used for listing a water if the assessment documents extremely poor conditions. Waters which are being

re-evaluated due to a single moderately impaired assessment should be placed in Category 5 of the report.

Response: This is the same assessment decision guidance DEQ has used in the past for previous 305(b) assessments. It reflects the concerns that Virginia has with the less precise nature of a RBP I assessment and with the variability of data in small data sets. As has been the case in the past 305(b) assessments, more than one moderate impaired rating is required for Virginia to consider the site non-supporting using the same method as used in past 305(b) assessments. The Virginia Biological Monitoring Program is currently undergoing a revision and a completely new method will be used to assess biological-monitoring data in the future, starting with the next 305(b) report. Additional monitoring of these sites will be scheduled and the waterbody will be assessed using the newly developed set of biological monitoring metrics. These sites will be reevaluated using the new method and assigned the proper category during the next 305(b) assessment cycle. To place the site in Category 5 at this time and to then try to reevaluate the site during the next 305(b) assessment and reconcile the two different assessments using two entirely different methods and set of metrics will result in unacceptable and unnecessary confusion. DEQ believes that it is more appropriate to list such sites as it has in the past. If subsequent biological monitoring, using the newly developed methods indicate that the waterbody is not supporting the designated use, then the waterbody will be assigned to the proper category at that time.

XXII. Page 32, Is the 25% threshold identified in section 6.4.2.2 correct?

Response: It was correct when written. However, the final estuarine IBI methodology does not include this concept. The final EPA approved estuarine B-IBI methodology is included in the final assessment guidance.

XXIII. Page 34, Should the nutrient enriched waters identified in section 6.5.1 be prioritized for a benthic investigation, being the aquatic life use is the primary use impacted by this type of impairment?

Response: DEQ will prioritize additional benthic assessments for waters where nutrient screening values indicate nutrient enrichment and DO exceedences indicate impairment.

XXIV. Page 45, Step 2 of the trophic state index (TSI) approach to low dissolved oxygen (DO) in lakes states "All data collected in the zone above the thermocline will be aggregated and assessed." How will the aggregation and assessment of this data occur, will all data points collected during a sampling cycle be evaluated individually or will they be averaged? Please describe how the TSI is impacted by algicides. Carlson recommends the use of phosphorus for the TSI in Fall, Winter, and Spring. Do phosphorus measurements accurately assess the TSI of a lake in the summer?

Response: All data collected above the thermocline will be assessed as individual samples and the number of exceedences will be assessed against the EPA 10.5 % rule.

Algaecides are used to kill algae which in turn would have a great impact on the amount of chlorophyll found in the lake. Chlorophyll is one of the indicators of "production" within a lake and is directly associated with the trophic state index results.
One could debate whether phosphorus measurements accurately assess the TSI of a lake in summer. It is recognized that chlorophyll is a better indicator of productivity in a lake, especially during the summer months. A Technical Advisory Committee has been formed to review this methodology and it is anticipated that some adjustments will be made to this procedure for the 2006 reporting cycle.

303(d) Listing/De-Listing and TMDL Priority Ranking

XXV. Page 51, Rule 2 of section 7.2, identifies how a water can be delisted for conventional pollutants, waters can also be delisted based on benthic evaluations and this should be included in the rule. How does the state intend to address waters in which modeling shows water quality criteria are being attained but data indicates otherwise.

Response: Rule 2 of Section 7.2 has been modified to include benthic evaluations that show full support of the aquatic life use.
If QA/QC approved data shows designated uses are not being attained, they will remain on the 303d list.